GRB's: Physical elements

- Relativistically expanding fireball (observed; $\Gamma \sim 10^{+2}$)
- GRB's produce high energy cosmic rays (plausible)
- $\gamma + p \rightarrow \pi^+ + n$ with $\epsilon_\nu \epsilon_p \simeq 0.2$ GeV^2 Γ^2
- $\epsilon_\nu \sim 0.05 \epsilon_p$